

### REMARKS

The examiner has objected to claim 178 under 35 USC 132(a) as introducing new matter. An amendment has been made to the claim to replace the reference to "at least a mile apart" with a reference to "are located in different cities." The new language is supported by the specification, which explains in paragraph [0091] of the published application (US20040167938) that "[g]eographic separation makes it unlikely that a disaster affecting one clique will damage another." Paragraph [0101] gives a concrete example of such geographic separation, indicating that storage "cliques are shown in three different cities."

The examiner has rejected claims 62-65 and 164-179 under 35 USC 101 for not producing a tangible result. In particular, the examiner points out that, after determining whether or not an entity version can be deleted, nothing is done even if it can be deleted. Applicant does not agree with the examiner that the claims are nonstatutory. But in the interest of expediting prosecution, amendments have been made to the claims.

Two clauses providing tangible results have been added to the independent claim (62). First of all, the action of the client program that causes the rules to restrict deletion has become "a first action", and a clause has been added, "wherein a second request, sent by the client program after the first request, would enable the entity version to be deleted in violation of the restriction, and the request is denied." This is a tangible effect of the existence of the rules, and shows that it is possible for a client to try to violate the restriction (for example, by trying to reduce the expiration time which they're not allowed to do (see [0105], [0158] of the published application). A second clause has also been added which makes it clear that clients can successfully cause deletion (after the expiration time): "wherein a third request, sent by the client program after the second request, causes the copies of the entity version to be deleted from the plurality of storage sites." Support for the clauses can be found in paragraph [0123]. Dependent claims 180-183 have been added to give examples of the actions.

Each of the remaining dependent claims that the examiner has asserted lack a tangible result now have the tangible results achieved in the independent claim.

The examiner has rejected claim 62 under 35 USC 112 as being indefinite. In particular,

the examiner points out that this claim doesn't define how the rules restrict deletion. In response, a further restriction has been added to the independent claim: "wherein the shared set of rules restrict deletion based at least in part upon a time that was associated with the entity version by an act of the client program;" And a new dependent claim 184 has been added to further define "the time",

184. The method of claim 62 in which the time associated with the entity version is a time when the entity version was created, transmitted or stored; or had some property changed; or a time assigned to the entity version.

There are several other time related dependent claims previously presented, but this one explicitly talks about "the time associated with the entity version". Support for claim 184 is found, for example, in Figure 3 (deposit times), paragraph [0100] (retention depends on when a current version was superseded), and paragraph [0158] (assigning expiration times). All of these examples are times assigned because of an act of a client program.

The examiner has also rejected claim 178 under 35 USC 112 as being indefinite. The language objected to has been removed (see above).

The examiner has rejected the independent claim (62) under 35 USC 103 as being unpatentable over Witt combined with Tol and Bo.

Witt discloses a "File Protection Service for a Computer System." A list of files is protected from being changed. Content signatures in a manufacturer's database are used to test if proposed changes are authorized. There is only a brief suggestion that users can override the protection to install files (Column 2 lines 45-50, Column 8 lines 53-57). There is no suggestion that such users cannot override the protection of files that they themselves install.

Tol discusses a system which automatically deletes the least important data stored in a storage system. Preservation weights are used to indicate which data is more important than other data. The highest preservation weight may indicate that data is permanent. This is applied to automatically deleting less important backup data first. In this system clients that store the data never directly delete the protected data, and are never prevented from deleting the data they

stored.

Bo describes a method of timestamping records in a database in order to allow versions of records for which there are no outstanding read requests to be deleted. Old versions are kept in order to allow write requests to proceed even though there are outstanding read transactions in progress. Old versions are deleted as soon as the system notices that they are no longer needed for any outstanding read transaction. In this case also, no client is ever prevented from performing an action that would cause the version to be deleted.

To make a clear distinction from Witt, the restriction has been added that the client that is prevented from deleting is also the client that deposited the entity version: "wherein a client program communicating with the disk-based distributed data storage system deposits the entity version into the storage system." This is an important clarification -- the protection against deletion constrains even the owner of the file. This clause makes claim 71 redundant and it has been canceled. Language used in other clauses has been changed to make it clearer that the client cannot undo the restriction once it is in place. The language discussed above under the 101 rejection, "wherein a third action, taken by the client program after the second action, causes the copies of the entity version to be deleted from the plurality of storage sites," makes it clear that the system allows client initiated deletion under other circumstances.

A second clear distinction of the claimed invention from the cited art is the distributed protection. The examiner reads "distributed protection" as simply "distributed". Two clauses have been added to make clear that this is a distributed system for protecting data:

wherein the independent application of the shared set of rules at each of the plurality of storage sites is designed to prevent alterations or corruptions of the operation at a one of the plurality of storage sites from allowing the entity version to be deleted or modified at another of the plurality of storage sites in violation of the restriction on the deletion of the entity version;

\* \* \*

wherein the plurality of storage sites communicate with one another in order to achieve fault tolerance against the loss of storage sites.

Support for the new claim language can be found in the specification, for example, at paragraphs [0097], [0101], and [0091] of the published application. Witt does not disclose fault tolerance, so the second clause above provides a sharp distinction. It is principally when storage sites have to talk to each other, in order to be fault tolerant, that it is necessary for a system designer to be careful about what one system can ask another to do, to avoid spreading corruption.

Furthermore, in the Witt asynchronous scheme, which is the one where storage systems talk to each other, does not disclose the claimed invention. In the Witt asynchronous scheme (see his summary) files are allowed to change and then they are changed back if possible (i.e., if the original file is still cached; or can be found on the network; or is on install media -- see Figures 5, 6 and 7). In the claimed invention, protected files are never allowed to change. This is very different. Also, the Witt synchronous scheme is not distributed, since the storage systems protect the files without needing to talk to each other (Figures 8 and 9, and text starting at column 12, line 58).

Some additions have also been made to the independent claim to distinguish more clearly from prior art distributed systems. The restriction that a record is protected even from the user that set the expiration time was added to the "time" clause discussed earlier in connection with the Section 112 rejections: "wherein the shared set of rules restrict deletion based at least in part upon a time that was associated with the entity version by an act of the client program;"

Accordingly, the independent claim is in condition for allowance.

The remaining claims are all properly dependent on one or more of the independent claims, and thus allowable therewith. Each of the dependent claims adds one or more further limitations that enhance patentability, but those limitations are not presently relied upon. For that reason, and not because applicants agree with the examiner, no rebuttal is offered to the examiner's reasons for rejecting the dependent claims.

Allowance of the application is requested.

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